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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/536,859

06/26/2006

Michael H. McKerrehgan

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WIGGIN AND DANA LLP  
ATTENTION: PATENT DOCKETING  
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EXAMINER

HA, NATHAN W

ART UNIT

PAPER NUMBER

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/536,859	<b>Applicant(s)</b> MCKERREGHAN ET AL.	
	<b>Examiner</b> Nathan W. Ha	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 February 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo (US 6,858,919, previously cited) and in view of Minamio et al. (US 6,680,524, newly cited, and hereinafter, Miamiio.)

3. In regard to claim 1, Seo discloses an integrated circuit device package (103) in fig. 4b, comprising: an integrated circuit device (2) having an electrically active surface (2b) and an opposing backside surface (2c) and sides (vertical side) extending therebetween, said electrically active surface (2b) having a plurality of electrically active circuit traces formed thereon and metallized bumps (2a) extending from selected sites on said circuit traces; a plurality of electrically conductive leads (6) each having respective first surfaces and opposing second surfaces; a plurality of electrical contacts (12) extending outward from said respective first surfaces; a solder (8) electrically and mechanically bonding said metallized bumps (2a) to said second surfaces; and a dielectric molding resin (10) formed into a package at least partially encapsulating said integrated circuit device (2) and said plurality of electrically conductive leads (6), said backside surface (2c) and said plurality of electrical contacts (12) are exposed on opposing sides of said package.

Seo, however, does not expressly disclose that the back side area to be less than the active surface area in order to provide a locking feature which happens inherently by the shape of the device. Nevertheless, it should be noted that the locking feature as claimed is widely used in semiconductor packages since such feature would allow the chip to be centralized inside the encapsulant material preventing any damage might happen during shipping or normal operation of the chip.

For instance, Minamio, in front figure, discloses an analogous semiconductor package including all of the limitations and further teaches that the back side surface area of the chip 9 is less than the active surface area in order to provide better secure between the resin and the chip, and so the resin and the wiring substrate. See the abstract.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to provide a locking portion as taught by Minamio in Seo in order to take the advantage as mentioned.

In regard to claim 4, Seo discloses the package (103) of claim 2 wherein a thickness of said package is less than three times a thickness of said integrated circuit device (the molding is coplanar to the surface of the IC), fig. 4b.

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seo and Minamio and in view of US 6759745 to Masumoto et al (newly cited, and hereinafter, Masumoto.)

In regard to claim 3, the combination of Seo and Minamio does not disclose the package (103) wherein said at least one feature includes two elements that intersect at an angle of approximately  $90^\circ$ .

However, Masumoto discloses a package in fig. 5 comprising a die (500) having at least one feature includes two elements (step portion at 517) that intersect at an angle of approximately  $90^\circ$ . At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to incorporate the die having step portion teaching of Masumoto in the package of Seo, because it would have reduced the amount of the fillet spread out around semiconductor chip as taught by Masumoto, see abstract.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Seo and Minamio and in view of US 6700206 to Kinsman et al (previously cited.)

In regard to claim 5, the above combination fails to disclose the package of claim 4 wherein said thickness of said package is approximately 0.01 inch.

However, Kinsman discloses a package (10), in fig. 1B, having a thickness approximately 0.012 inch, col. 6 line 20. Accordingly, it would have been obvious to one of ordinary skill in art to use the thickness teaching of Kinsman in the range as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation, MPEP 2144.05, and such package thickness is typical in the art.

6. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Seo and Minamio and in view of US 7192789 to Okada et al. (previously cited.)

In regard to claims 6-7, the above combination fails to disclose the package wherein said integrated circuit device is a sensor responsive to external stimulus, wherein said external stimulus is a touch. However, Okada discloses a package in fig. 5 or 7 comprising an IC (2) having an exposed surface wherein said IC (2) is a sensor responsive to external stimulus, wherein said external stimulus is a touch (finger sensor). At the time the invention was made; it would have been obvious to a person having ordinary skill in the art to use the finger sensor teaching of Okada in the package of Seo/Minamio for an intended purpose such as touch sensitive device.

### ***Response to Arguments***

4. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan W. Ha whose telephone number is (571) 272-1707. The examiner can normally be reached on M-TH 8:00-7:00(EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nathan W. Ha/  
Primary Examiner, Art Unit 2814

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